FAILURE OF SERUM MYOGLOBIN AND CREATINE KINASE ISOFORMS KINETICS TO PREDICT EARLY CORONARY PATENCY AFTER THROMBOLYSIS IN TIME FOR RESCUE ANGIOPLASTY.

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Early non-invasive detection of reperfusion after thrombolysis for acute myocardial infarction could permit detection of thrombolysis failures in time for rescue angioplasty (PTCA) without systematic acute catheterization. To prospectively compare several indices of reperfusion, 19 patients (pts) admitted within 6 hours of the onset of pain were treated with IV rt-PA (1mg/kg in 1 hour and 0.5 mg/kg in 3 hours, with a coronary angiogram at 90 min of thrombolysis),(n=13) or emergency primary PTCA (n=6). They all underwent serial dosage of serum myoglobin (Myo), total creatine kinase (CK), and CK isoforms every 30 min for 2 hours and at 4 hours from start of thrombolysis or PTCA. Infarct-related artery (IRA) patency was assessed acutely in all pts. The 6 pts with primary angioplasty all had occluded IRAs, while at 90 min of thrombolysis, 9/13 thrombolysed pts had a patent IRA, and 4 pts underwent rescue PTCA. After thrombolysis, all pts showed a marked rise in Myo, peaking after 90 mins. Myo, total CK, the % of CK MM_3 and the MM_3/MM_1 ratio increased in all the pts, but neither their rate of rise nor their peak values (absolute or relative) were discriminant for acute patency at 90 minutes. However, within 30 mins of primary or rescue PTCA, there was a brisk increase (> 4-fold) in Myo, in % MM_3 (> 2.5-fold), and in the MM_3/MM_1 ratio (>7-fold). Conclusion : After thrombolysis, enzymatic criteria could not accurately predict IRA patency at 90 minutes. Furthermore, indices based on Myo peaking cannot discriminate non-reperfused pts in time for rescue PTCA. Conversely, from our data in primary and rescue PTCA pts, brisk reperfusion of the IRA leads within 30 mins to a dramatic rise in Myo, MM_3 levels and MM_3/MM_1 ratio.

THE UTILITY OF ELECTROCARDIOGRAPHIC ISCHEMIA MONITORING IN THE INTENSIVE CARE UNIT FOR THE DETECTION OF CARDIAC EVENTS AFTER NONCARDIAC SURGERY

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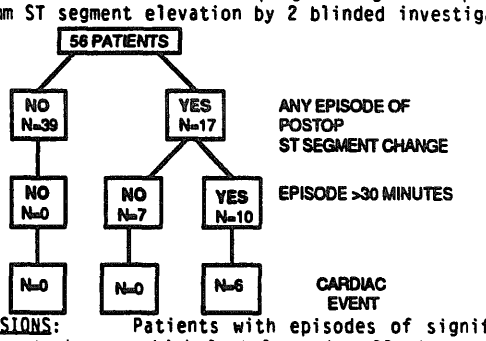
To determine the relationship of postoperative myocardial ischemia to *clinically relevant* cardiac events (myocardial infarction, ischemic pulmonary edema, or unstable angina), we monitored the electrocardiogram (SpaceLabs AECG 90205/FT2000 system) postoperatively (~80 hrs) in 56 high-risk noncardiac patients. Significant ST segment changes were defined as ≥60 sec of ≥1mm horizontal or downsloping ST segment depression or ≥2mm ST segment elevation by 2 blinded investigators.



CONCLUSIONS: Patients with episodes of significant ST segment changes which last less than 30 minutes while in the ICU are at minimal risk of sustaining a perioperative event. The association of prolonged ST segment changes with clinical cardiac events supports the contention that these ST segment changes represent important cardiac ischemia. The electrocardiogram is sufficiently sensitive to detect ischemia which leads to *clinical* events during the postoperative period in noncardiac surgery patients.

IMPROVED MYOCARDIAL ISCHEMIA WITH SUCCESSIVE PROLONGED CORONARY OCCLUSIONS IN PTCA ASSESSED BY INTRACORONARY ECG

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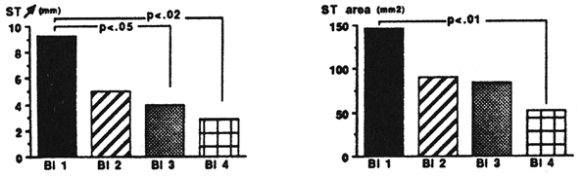
Decrease in chest pain and surface ECG changes is commonly observed with successive balloon inflations (BI) in PTCA, likely related to decreased myocardial ischemia (MI). Intracoronary (IC)-ECG, which has been shown to be more reliable than surface ECG to detect MI, was used in this study to assess this phenomenon. In 12 patients (Pts), mean age 60, with single LAD (9 Pts) or RCA (3 Pts) lesion and no previous infarction, IC-ECG was recorded at 30, 60, 90 and 120 sec after onset of BI from the guidewire distal to the lesion. Four BI were performed, maintained 213 ± 33 sec and separated by 1 min deflation. At each BI, ST elevation (ST ↑, mm) and ST area (mm^2) were measured on 2 successive beats. Presence of chest pain was noted.

Results : Heart rate was stable from BI 1 to 4. Angina occured in 9 Pts at BI 1, in 6 at BI 2, 4 at BI 3 and 2 only at BI 4. ST ↑ occured in all Pts except 3 who had complete collateral filling of the stenosed artery. Maximal ST ↑ was reached at 30 sec and then remained unchanged. ST ↑ and ST area at each BI were :



Conclusion : Repetition of prolonged BI does induce a decreased myocardial ischemic response as shown by a decrement in ST ↑ and ST area on IC-ECG, associated with less angina.

Tuesday, March 5, 1991
Poster Displayed: 9:00AM–12:00NOON
Author Present: 9:00AM–10:00AM
Hall F, West Concourse
Cardiac Defibrillation

REDUCTION IN DEFIBRILLATION SHOCKS WITH A DEVICE COMBINING ANTITACHYCARDIA PACING, CARDIOVERSION AND DEFIBRILLATION

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Significant restriction in quality of life with implantable defibrillators can occur as a result of frequent device shocks. To evaluate whether devices which provide antitachycardia pacing (AP) therapies as well as defibrillation (DEF) can safely reduce the frequency of shocks, 46 consecutive pts undergoing initial implantation of a defibrillator were studied. In all pts the implanted device provided AP and DEF therapies. There were 42 men and 4 women aged 26 to 71 years (mean age 58.7±13.5 years). Left ventricular ejection fraction ranged from 13 to 67% (mean 32.2±13.4%) and 31 pts had experienced one or more cardiac arrests. Over a total follow up of 255 patient months (range 1-13, mean 6.1 months) 27 pts experienced spontaneous arrhythmic events. In 23 pts 914 episodes of tachycardia were treated by AP which was successful on 884 occasions. Syncope did not occur during AP. Eighty-two tachycardias in 11 pts were treated directly by DEF because of short tachycardia cycle length. Defibrillation therapies were all successful. Thus, 92% of all detected tachycardias were treated successfully by pacing. Four pts died from cardiorespiratory failure and 1 patient died suddenly without any detected tachyarrhythmias. These initial results demonstrate that a device which provides graded therapy for ventricular arrhythmia reduces the need for high energy shocks and does not cause detrimental delays in the treatment of ventricular tachycardia.